

ICTs IN EDUCATION IN GUINEA



Map of Guinea: CIA – The World Factbook

Overview

Guinea has begun the implementation of ICTs in the tertiary education sector in collaboration with donors. Donor efforts have also recorded significant impact on the primary and secondary education sectors. Specifically, the USAID has assisted Guinea under the GFLOBE programme and launched other initiatives jointly with some state organs.

Electrification and telecommunication however constitute drawbacks to the process since the infrastructures are limited to certain urban areas and power supply is at best irregular even in the administrative region in the capital city, Conakry, where the ministries and principal organs of state are located. This phenomenon among others presents challenges to the deployment of ICTs across the country, particularly in the education sector.

Introduction

The Republic of Guinea is located on the West Coast of Africa between Sierra Leone and Guinea-Bissau. It is a well-watered country with great agricultural potential. Guinea was colonized by France and became independent in 1958. Owing to the isolationist policies pursued by its first government, the country's economy suffered stunted growth. Listed below is the summary population and economic statistics of the country [<https://www.cia.gov/cia/publications/factbook/geos/gv.html>]:

- Population 9.69 million
- Growth rate 2.36%
- GNP US\$3.651 billion
- GNP per capital US\$370
- Human Development index rank - 160 out of 177 countries.
http://hdr.undp.org/hdr2006/statistics/countries/country_fact_sheets/cty_fs_GIN.html

The country has about one-third of the world's reserves of bauxite. Bauxite mining is the mainstay of the economy and contributes 70% to export earnings. About 80% of the country's workforce is in the agricultural sector which contributes approximately 25.6% to the country's GDP with 47% of the population below the poverty line
[\[https://www.cia.gov/cia/publications/factbook/geos/gv.html\]](https://www.cia.gov/cia/publications/factbook/geos/gv.html) .

Education System and Structure

There are four ministerial departments in charge of the various educational sectors in Guinea. Listed below are the ministries and their functional domains:

Ministerial Department	Sector
Ministry for Social Affairs and the Promotion of Women and Children (MASPFE)	Pre-primary
Ministry for Civic and Pre-university education (MEPU-EC)	Primary and Secondary
Ministry for Vocational and Professional education (MET-FP)	Vocational and Professional
Ministry for Higher Education and Scientific Research (MESRS)	Tertiary

The four ministries, in collaboration with state organs and departments under the ministries and partners and donors, have reached various stages of implementation of ICTs in the different educational sectors.

Guinea practices a system of six (6) years basic education, seven (7) years secondary education (four years for the 1st cycle and three for the 2nd) with tertiary education varying from one (1) to four (4) years according to the desired qualification. Government allocates 25.6% of budgetary resources to education. The compulsory age for schooling is 7 years.

Below are the key educational trends for the various levels of education in terms of enrollment and gender participation.
[\[http://www.usaid.gov/gn/education/background/index.html\]](http://www.usaid.gov/gn/education/background/index.html)

Educational Level	% Male	% Female	% Overall
Pre-Primary			6
Primary	69	58	64
Secondary	28	14	21
Tertiary	4	1	2

In 1999 the literacy rate in Guinea was 36% for men and 14% for women. In the rural areas, girls have to surmount daunting barriers to obtain basic education. The table below also gives the gross enrolment rates
[\[http://www.usaid.gov/gn/education/background/index.html\]](http://www.usaid.gov/gn/education/background/index.html) in the urban and rural areas.

Gross Enrollment Rates (GER)	
Conakry (Urban)	128%*
Beyla (Rural)	58%
Dingiraye (Rural)	43%

The gross enrollment rate is more than 100% in Conakry, the capital, because of an inefficient system of children being repeated or rejoining classes after a break in schooling. The figure includes underage or overage children and therefore exceeds the national average.

Infrastructure

Guinea's telecommunications infrastructure is the least developed in West Africa. The country has the lowest telephone density in West Africa with coverage¹ of 0.3% for fixed lines and 1.7% for mobile/cellular phone penetration. Between the years 2000 and 2005 the number of mobile phone users increased by 35%.
[\[http://www.google.com/search?hl=fr&q=telephone+users+in+Guinea&btnG=Rechercher&lr=\]](http://www.google.com/search?hl=fr&q=telephone+users+in+Guinea&btnG=Rechercher&lr=).

The USAID Leland Initiative served as the springboard for internet connectivity for Guinea. Sotelgui, the country's main telecom operator was provided a high speed internet gateway under the project to which private ISPs could subscribe and sell internet services to the public.

USAID also assisted the two public universities, the universities of Conakry and Kankan and their remote campuses, to establish campus networks, internet and telephone

connections – commercialisable services that the universities could extend to the larger public through wireless links and the Sotelgui infrastructure.

Below are some relevant statistics on telephone density and audio-visual infrastructures [<https://www.cia.gov/cia/publications/factbook/print/gv.html>].

**Telephones
main lines in
use:** - 26,200 (2003)

**Telephones
mobile cellular:** - 189,000 (2005)

**Radio
broadcast
stations:** 5 FM 5, 3 shortwave (2006)

Radios: 357,000 (1997)

**Television
broadcast
stations:** 6 low capacity (2001)

Televisions: 85,000 (1997)

Internet hosts: 367 (2006)

**Internet
Service
Providers
(ISPs):** 5 (2006) including Mirinet and ETI-Bull, the first two ISPs. The fifth, Celcom, obtained its license in 2006.

Internet users: 46,000 (2005)

The drawback to these initiatives is the absence or irregularity of electric power supply in most parts of the country. Perennial power cuts are currently the norm and affect even the administrative district of Conakry.

30% of the number internet users are foreigners [www.monde-diplomatique.fr/2002/01/CHENEAU_LOQUAY/16003] with the larger proportion of remaining users composed mainly of university students and faculty members.

Policy Framework and Implementation

Guinea's NICI plan document was finalized in March 2002 [www.uneca.org/aisi/NICI/country_profiles/Guinea/guineapol.htm]. The plan provides for the creation of jobs through the use of ICTs and focuses on the following:

- Strengthening the ICT policy and regulatory process;
- Education and capacity building in ICT;
- Infrastructure development to provide the country and users with adequate bandwidth and applications;
- Development of content and democratizing of access to all users, including civil society; and
- Promotion of the participation of the private sector in ICT activities

The plan includes the following programmes that have a direct or indirect impact on education:

- Telephone and Internet network for higher education institutions ;
- Strengthening and expanding telecom, Internet and TV infrastructure ;
- Expansion of rural telephony and community telecentres, and
- Digitization of the telecom network.

The government's educational policy hinges on four basic objectives:

- 100% attendance for school pupils by 2015;
- Promotion of pre-school education;
- Provision of large access to professional and vocational training;
- Promotion of gender balance in education for the different regions of the country.

The various educational levels have been impacted positively and enrollment and completion rates have increased significantly since the 'Education for All' and Gender Equity projects were initiated. Below are essential statistics from 1999 to 2004.

Sector	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004
<i>Pre-primary</i>					67881
<i>Primary</i>	790497	853623	997645	1081192	1163126
<i>Secondary</i>	189494	232567	271089	294354	1163126
<i>Vocational</i>	11049	13166	13085	13360	14947
<i>Teacher Training</i>	1269	2132	2530	2155	3582
<i>Tertiary</i>	11682	13500	14819	16361	22223

The low enrollment in the vocational and professional sector underlines government's resolve to provide substantial growth in that sector [<http://www.fao.org/SD/ERP/addisababa/session%202%20country%20presentation/PPP%20Guinee.ppt#567,46>].

Major Initiatives

Initiatives in the Basic and Secondary Education Levels

The National Institute for Pedagogical Research and Action (*Institute National de Recherche et d'Action en Pédagogie, INRAP*) under MEPU-EC designed an Interactive Radio Instruction Programme (IRI) for pupils from primary classes 1 to 6 that effectively raised the levels of school attendance.

The programme called "Under the Kapok Tree" which develops both teachers and pupils began in 2006, is aired 90 minutes per week, for 22 weeks of the school year. It is estimated that 20 000 teachers and 900 000 pupils benefit from the programme nationally. Lessons cover language, mathematics, science, community health and early child development methods. To implement effectively the programme, the government distributed teachers' guides and wind-up radios nationally owing to the absence of electricity in most parts of Guinea. [<http://ies.edc.org/news/articles.php?id=24>]

These activities are combined with bi-monthly meetings and introductory workshops for teachers organized nationally to give teachers necessary pedagogical support to adapt to the interactive style of teaching. The USAID financed the project and jointly designed the content with INRAP.

The USAID/Guinea also financed the participation of 14 primary, secondary and professional schools in the GLOBE (Global Learning and Observation to benefit the Environment) programme by donating one laptop each to the schools which the students and teachers used to collect data. Activities covered atmospheric research, soil, earth, biological and geological data and information gathering using scientific instruments provided by GLOBE. [http://french.guinea.usembassy.gov/fev_0305.html]

This facility enabled the teachers and their students to share scientific measurements of geological systems and their observations with students and scientists throughout the world.

The GLOBE project is an international network of more than one (1) million students in over 1 400 schools in 105 countries.

Initiatives at the Tertiary Level

Université de Conakry has a campus network maintained by a fibre optic backbone and 100BaseT Ethernet cables linking the buildings and faculties and 1 000 computers in the offices of lecturers and administrators. Each faculty has a laboratory of 5 to 9 computers for use by the lecturers and students alike. However the PC-to-user ratio in the laboratories is 10:1 000. [<http://event-africa-networking.web.cern.ch/event-africa->

[networking/workshop/slides/CAS%20DE%20I%E2%80%99UNIVERSITE%20%20DE%20CONAKRY.ppt#257,2,Diapositive 2\]](#)

The government established the network with assistance from the American government at a cost of US\$ 2 000 000. The principal objective is to interconnect the network to the entire educational system in Guinea including the country's second university and other remote campuses of the university.

The remote campuses are to be connected by wireless to the hub in the University of Conakry where the email, web and file servers are located. The university's internet and telephone facility is serviced by a 3.5 metre diameter installed VSAT.

The Faculty of Science of the University of Conakry has in collaboration with ISSEG, the Higher Institute for Science Education, developed e-content modules for mathematics, physics, biology and chemistry. The success of the initial e-modules encouraged the University to increase the number of e-content courses. In early 2003, the *Centre Universitaire de Labe* under the Université de Conakry, also produced an e-mathematics module. The University plans to establish resource centres nationwide to increase accessibility to these courses. Similarly the University of Kankan is extending the network to its remote campuses.

[http://www.usaid.gov/gn/infotechnology/news/991117_kankan/speech.htm]

[<http://www.africaden.net/spip.php?article309>]

Other on-line university courses are equally offered in collaboration with the *Agence Universitaire de la Francophonie (AUF)* in the Universities of Conakry and Kankan and the decentralized campus of Labe.

[http://www.dmi.usherb.ca/ciruisef/DOC_ciruisef/DOC_Dakar2003/Dakar_17mc_Bernard_01.pdf]

RESAFAD, the African network for distance education (*Réseau Francophone de Formation à Distance*) in collaboration with MEPU-EC delivered teacher training courses via the Internet to teachers in Guinea. The courses were targeted at headteachers who manage schools of six (6) or more classes and were aimed at raising the quality of school leadership and management.

About 960 headteachers were involved in the programme which is intended to impact all primary school teachers following a cascading pattern of capacity transfer from the headteachers to teachers under their supervision.

[<http://www.edusud.org/IMG/pdf/aguinee.pdf>]

The Department of Training Planning, Administration and Education Management (DFPAGE) in ISSEG was directly responsible for the implementation of the RESAFAD

programme. A cybercafé that can accommodate thirty (30) persons was set up for use by the teachers at ISSEG. Plans were made to establish cyber centres in the eight (8) regions of the country to link the facility for teachers nationwide.

Generally, the RESAFAD project aims at assisting developing countries to participate in knowledge based economies and uses ICT to provide state of the art employment-focused education to deliver training to the workforce thereby reducing the pressure on formal education systems.

Initiatives in Tertiary Science Education

The Fundamental levels of Quality and Equity project, NFQE (*Niveaux Fondamentaux de Qualité et Équité*) also uses multimedia tools and equipment to deliver its programmes. It is a bimodal training programme targeted at teachers and pupils. The programme was launched in 1997 and combines traditional teaching methods with radio and audio cassette in distance learning activities. [<http://www.edusud.org/adea/guinee-cl.pdf>]

USAID/Guinea was the main financier of the NFQE project that ended in 2004. The programme impacted more than 1.5 million pupils from classes 1 to 6, 25 300 teachers and 4 000 headteachers nationwide. Below are the main components of the programme:

- Leadership development support in education
- Assistance in the preparation of policy implementation
- Teacher training, specifically in time and class management, mathematical logic, reading and questions administration
- Training of teacher-trainers
- Development and improvement of teaching materials for pupils
- Building management capacity using computers
- Preparation of a national teacher-training policy

The programme offered more than 60 hours of training to elementary school teachers via internet, radio and other media.

The USAID signed an agreement with the *University de Kankan* to teach internet and network courses, provided 33 computers – one to each of the 33 district education headquarters, DPE (Direction Prefectoral de l'Education), and refurbished their offices. However some of the DPEs do not have electric power supply and could not use their computers. [<http://unesdoc.unesco.org/images/0014/001434/143485f.pdf>]

Other Initiatives in Teacher Education

Other interventions have been recorded in the primary-teacher education contexts. ISFAD, Guinea's Higher Institute for Distance Education (*Institut Supérieur de la Formation à Distance*) launched a distance learning (DL) teacher-training programme in order to augment placements for teacher trainees since the traditional methods offered a very limited number of places each year to successful candidates. The DL candidates did not need to pass the teacher-trainee entrance exams. Rather, they paid fees once annually and were required to pass only the annual examinations set by the examining board. [<http://www.edusud.org/IMG/pdf/aquinee.pdf>]

ISFAD started the programme with 800 trainees in the 2003/2004 academic year and employed radio programmes in addition to course manuals to educate the teacher-trainees. There are plans to include video materials. However ISFAD is yet to acquire the equipment for video production.

The National Distance Teaching Service (*Le Service National d'Enseignement à Distance*) also uses audio materials, both radio and audio cassettes, to deliver French language courses to teachers nationwide using material adapted from the *Agence Universitaire de la Francophonie (AUF)*.

Specific Initiative in Adult Education

In a bid to reduce the level of illiteracy in Guinea, ISSEG, though an institute for higher education, launched the POSCHIAVO adult education project in collaboration with the *Institut Suisse de Pedagogie pour la Formation Professionnelle* based in Lugano in Switzerland to teach people in disadvantaged and rural comities to read. [http://www.initiatives.refer.org/Initiatives-2003/_notes/_notes/dialloverversionder.html]

ISSEG partnered with the *Service National d'Alphabétisation* (National Literacy Service), and NGOs engaged in adult education activities and programmes.

The NGOS provided 16 trainees, twelve of whom were retained under the project after their training, to undertake adult literacy teaching assignments in designated communities. The remaining four (4) found jobs with other NGOs.

In order to ensure project sustenance, the literacy programme was integrated with a community development project for each beneficiary community. A village community was assisted financially to build and operate a rice- mill. Another had a corn- mill as part of the programme. A cybercafé was established for another disadvantaged community in Conakry.

The communities, in collaboration with their trainer, identify a project and request assistance form POSCHIAVO to implement it. The communities refund 70% of cost of their projects to POSCHIAVO that the project uses as a revolving fund to assist other

needy villages or communities. Facilities are withdrawn from any community that refuses to refund agreed funds.

Initially POSHIAVO used e-learning resources to train the trainers provided by the NGOs. Once in the field the Swiss donor also sent in trainers who helped the local trainers, over a two-week period per community, to deliver the literacy programmes where the trainers encounter difficulty. The involvement of the Swiss trainers was a quality improvement and evaluation strategy intended to ensure that the training approaches were well assimilated both by the trainers and the adult learners.

Generally, the POSCHIAVO project used training and communication resources offered by internet to optimize literacy and community development, organize a network of micro-projects focused on education for community development, and quality improvement. The project aims at replicating the literacy and micro-project activities nationwide.

Below is the course content for the POSCHIAVO trainers who underwent e-training at ISSEG. There are two components: ICT and Community development. ICT covers Microsoft Office applications: Word, Excel and PowerPoint whilst for Community Development the aspects covered are: Family budget; Micro-enterprise management; Preparing community development micro projects; Community health; and Social psychology.

Enabling and Constraining Factors

The enabling, constraining and risk factors are as tabulated below by subject category:

Sectors	Enabling factors	Constraining Factors	Risk Factors
ICT Deployment	<p>Installation of the high speed internet facilities in Sotelgui and the universities</p> <p>Extension by the universities of internet and other services to the public via wireless links and Sotelgui</p>	<p>Universities financially constrained from extending the facilities even on the campuses.</p> <p>Private sector ISPs emphasise commercial service against community service.</p> <p>Low levels of ICT literacy in the general and</p>	<p>Possibility of failure of government or universities to renew or maintain installed facilities.</p> <p>Inability of government to extend ICT infrastructure due to financial and budgetary constraints</p>

		teaching population	
Non Formal Education	The establishment of 300 NAFA centres (rural second chance schools) for drop-outs or unenrolled children by the UNDP	Insufficiency of project funds for the establishment of nafa centres to cover all the needy communities in the country	Financial means to continue and maintain the facilities after project completion
Gender Balance in Education	Girls accorded 80% priority enrollment in the nafa centres.	Traditional that keeps girls from being educated especially in the rural areas	Abandonment of the priority policy for girls with time.
Vocational and Professional Education	Government policy to increase the number of schools and enlarge the intake of vocational and professional student populations	Government budgetary constraints	Students preference for academic to professional/vocational training
Community Focused Education	The plan to extend the POSCHIAVO and like projects to other disadvantaged and rural communities	Poor financial management practices or attitude of trainee associations in deprived communities	Possibility of project bankruptcy owing to the refusal of communities to re-imburse scarce project funds.
ICT Policy implementation	Policy developed and announced and options advertised.	Slow pace of deregulation and privatization of the communications sector	

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¹ Tierno S. Bah, Internet, Enjeux, Opportunités, Perspectives – 17 Mai, 2001, Hôtel Novotel, Conakry, Guinée - www.guinee.net/bibliotheque/economie/telecoms/enjeux.html